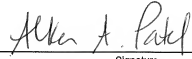
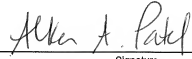
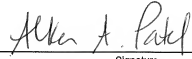


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PTO/SB/33 (06-09)

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PRE-APPEAL BRIEF REQUEST FOR REVIEW		Docket Number (Optional) 037768-0173										
I hereby certify that this correspondence is being deposited with the United States Postal Service with sufficient postage as first class mail in an envelope addressed to "Mail Stop AF, Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450" [37 CFR 1.8(a)]  on _____  Signature _____  Typed or printed name _____		Application Number  10/698,564	Filed  October 31, 2003									
		First Named Inventor  Tapesh Yadav										
		Art Unit  1792	Examiner  Elena Tsoy Lightfoot									
<p>Applicant requests review of the final rejection in the above-identified application. No amendments are being filed with this request.</p> <p>This request is being filed with a notice of appeal.</p> <p>The review is requested for the reason(s) stated on the attached sheet(s). Note: No more than five (5) pages may be provided.</p> <p>I am the</p> <table border="0"><tr><td><input type="checkbox"/> applicant/inventor.</td><td> Signature</td></tr><tr><td><input type="checkbox"/> assignee of record of the entire interest. See 37 CFR 3.71. Statement under 37 CFR 3.73(b) is enclosed. (Form PTO/SB/98)</td><td>Alka A. Patel Typed or printed name</td></tr><tr><td><input checked="" type="checkbox"/> attorney or agent of record. Registration number 49,092</td><td>412 - 263-1845 Telephone number</td></tr><tr><td><input type="checkbox"/> attorney or agent acting under 37 CFR 1.34. Registration number if acting under 37 CFR 1.34 _____</td><td>July 1, 2009 Date</td></tr></table> <p>NOTE: Signatures of all the inventors or assignees of record of the entire interest or their representative(s) are required. Submit multiple forms if more than one signature is required, see below*.</p> <table border="1"><tr><td><input type="checkbox"/> *Total of _____ forms are submitted.</td></tr></table>				<input type="checkbox"/> applicant/inventor.	 Signature	<input type="checkbox"/> assignee of record of the entire interest. See 37 CFR 3.71. Statement under 37 CFR 3.73(b) is enclosed. (Form PTO/SB/98)	Alka A. Patel Typed or printed name	<input checked="" type="checkbox"/> attorney or agent of record. Registration number 49,092	412 - 263-1845 Telephone number	<input type="checkbox"/> attorney or agent acting under 37 CFR 1.34. Registration number if acting under 37 CFR 1.34 _____	July 1, 2009 Date	<input type="checkbox"/> *Total of _____ forms are submitted.
<input type="checkbox"/> applicant/inventor.	 Signature											
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<input type="checkbox"/> attorney or agent acting under 37 CFR 1.34. Registration number if acting under 37 CFR 1.34 _____	July 1, 2009 Date											
<input type="checkbox"/> *Total of _____ forms are submitted.												

This collection of information is required by 35 U.S.C. 132. The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.11, 1.14 and 41.8. This collection is estimated to take 12 minutes to complete, including gathering, preparing, and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, U.S. Department of Commerce, P.O. Box 1450, Alexandria, VA 22313-1450. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. SEND TO: Mail Stop AF, Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450.

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**IN THE UNITED STATES PATENT AND TRADEMARK OFFICE**

Application No. : 10/698,564  
Applicant : Tapesb Yadav  
Filed : October 31, 2003  
Group Art Unit : 1792  
Office : Elena Tsoy Lightfoot  
Confirmation No. : 1121  
Customer No. : 24959  
Attorney Docket No. : 037768-0173  
Title: : HIGH VOLUME MANUFACTURING OF NANOPARTICLES  
AND NANO-DISPERSED PARTICLES AT LOW COST

**PRE-APPEAL BRIEF REQUEST FOR REVIEW**

Mail Stop AF  
Commissioner for Patents  
P.O. Box 1450  
Alexandria, VA 22313-1450

In response to the Final Office Action dated April 1, 2009 in the above-identified application, Applicants submit the following Pre-Appeal Brief Request for Review and corresponding Notice of Appeal.

## REMARKS

Applicants respectfully request a panel review of the final rejections in the above-referenced application. This Request is being filed concurrently with a Notice of Appeal. In the final Office Action dated April 1, 2009 (hereinafter "Final Office Action"), claims 1, 2, 4-15, 17, 18, 20-23 and 25-35 were rejected as follows:

Claim 15 was rejected under 35 U.S.C. § 112, 1<sup>st</sup> paragraph; Claims 1, 4, 6, 11-20, 27, 31-35 were rejected under 35 U.S.C. § 112, 1<sup>st</sup> paragraph; Claims 1, 4, 6, 11-20, 27 and 31-35 were rejected under 35 U.S.C. § 112, 2<sup>nd</sup> paragraph;

Claims 1, 4, 6, 11-15, 17, 18, 20, 27 and 31-35 were rejected under 35 U.S.C. § 103(a) as being unpatentable over U.S. Patent No. 5,489,449 to Umeya, et al. ("Umeya") in view of U.S. Patent No. 5,984,997 to Bickmore, et al. ("Bickmore"); Claims 1, 4, 6, 11-15, 17, 18, 20, 27 and 31-35 were rejected under 35 U.S.C. § 103(a) as being unpatentable over Bickmore in view of Umeya; Claims 1, 4, 6, 11-15, 17, 18, 20, 27 and 31-35 were rejected under 35 U.S.C. § 103(a) as being unpatentable over U.S. Patent No. 5,356,120 to Konig, et al. ("Konig") in view of U.S. Patent No. 3,565,676 in view of Holzl et al. ("Holzl"), further in view of Umeya; and Claims 31-33 were rejected under 35 U.S.C. § 103(a) as being unpatentable over Konig in view of Holzl and further in view Umeya and further in view of Bickmore.

Note the Office's rejection or withdrawal on page 3, paragraph 7 of the Final Office Action is unclear as it appears to be a reiteration of paragraph 6 immediately preceding it.

### **I. 35 U.S.C. § 112 Rejections**

With respect to claim 15, the Office maintains that the specification "does not reasonably provide enablement for unlimited temperature of greater than 1500°C, e.g., 1,000,000°C or more." The Office states that the Applicants' arguments set forth in the Amendment filed February 17, 2009 (herein "February Amendment"), page 9, lines 14-28 and incorporated herein are "unconvincing because the Applicants' specification does not show the uppermost limit for heating is obviously bound by what can realistically be achieved, and, thus, the scope of claimed invention is uncertain." Applicants disagree with the Examiner and maintain their position with respect to this rejection and further contend that there is no explicit requirement "to show an uppermost limit for heating" in the specification as stated by the Office.

Moreover, in order to satisfy the enablement requirement of § 112, paragraph 1, the specification must enable one of ordinary skill in the art to practice the claimed invention without undue experimentation. See additional comments made in Amendment dated October 9, 2008 (herein "October

Amendment”), page 10, lines 5-9 and incorporated herein. Between the specification, the claims, and the knowledge of one of ordinary skill in the art, one of ordinary skill in the art would be able to practice the claimed invention at a temperature greater than 1500°C without undue experimentation. Accordingly, for at least these reasons the rejection should be withdrawn.

The Office rejects claims 1, 4, 6, 11-20, 27 and 31-35 under 35 U.S.C. § 12, 1<sup>st</sup> paragraph, because “the high temperature processing conducted at 1550°C preferably 2500°C . . . is critical or essential to the practice of the invention.” Applicants respectfully disagree with the Office for the same reasons stated above in regards to claim 15 and for the reasons set forth in the October Amendment, page 11, lines 8-10 incorporated herein, and thereby request withdrawal of the rejection.

The Office rejects claims 1, 4, 6, 11-15, 17-20, 27, 31 and 32 under 35 U.S.C. § 112, 2<sup>nd</sup> paragraph as the terms “high” and “higher temperatures” render the claims indefinite. While Applicants disagree with the rejection, in order to remove an issue on appeal, Applicants are willing to amend the pending claims to remove the terms “high” and “higher temperature”, thereby rendering the Office’s rejection under 35 U.S.C. § 112, second paragraph, moot.

## **II. 35 U.S.C. § 103 Rejections**

In the Final Office Action, the rejections of the claims with respect to Umeya and Bickmore were maintained. The Office states on page 4 of the Final Office Action that the “cited prior art is applied [here] for the same reasons as set forth in paragraph 14 of the Office Action mailed on 11/18/2008.” Therefore it appears that the Office’s continued position as stated in the Office Action dated November 18, 2008 (herein “November Office Action”) page 8, paragraph 14, is that Umeya does not teach the claimed metal-containing precursors and it would be *prima facie* obvious to combine the method of Bickmore “to provide the desired ultrafines in Umeya” to arrive at Applicants’ claimed method.

Applicants contend that the Office’s position is without merit. Applicants disagree with the Office’s position and moreover, even assuming *arguendo* that it “would have been obvious to one of ordinary skill in the art at the time the invention was made to have used a method of Bickmore ...to provide the desired ultrafines in Umeya,” the Office’s position is rendered moot in view of Applicants’ amendments and arguments submitted in the February Amendment.

Neither Umeya or Bickmore alone or in combination in any order teach or suggest a method of manufacturing a nano-dispersed nanopowder of carrier particles and metal-containing precursor particles that are dispersed on and attached to the surface of the carrier particles as claimed. In particular, neither reference discloses the step of preparing a mixture of one or more metal-containing precursors and carrier particles to create a slurry precursor. Umeya merely teaches the introduction of

solid core particles in a monodispersed state into a vapor stream (by CVD or PVD) containing ultrafines such that the ultrafines covalently bond to the solid particles to form a coating thereon (Umeya, col. 3, lines 11-22). As such, a mixture or slurry precursor of one or more metal-containing precursors (i.e., ultrafines) and carrier particles (i.e., core solid material) as claimed is never prepared by Umeya. Bickmore clearly fails to cure the deficiencies of Umeya because Bickmore describes a method for producing homogenous nanoparticle powders from mixtures of elements and not from one or more metal-containing precursors and carrier particles such that nano-dispersed powders of carrier particles and metal-containing precursors dispersed thereon are produced as presently claimed. As such, Bickmore can be relied upon for providing a method for producing carrier particles and nothing more. Accordingly neither reference alone or in combination teach or suggest the present claimed invention.

Furthermore the Office itself concedes in the Final Office Action that Umeya does not teach the step of “preparing a mixture of one or more metal-containing precursors and carrier particles to create a slurry precursor” and then “feeding the slurry precursor to a reaction zone of a high temperature reactor thereby creating a vapor of the slurry precursor” as recited in the claims. Additionally in the November Office Action, the Office concedes that “Bickmore et al. fails to teach that carrier particles are added to a stage of combustion processing (claims 16)”, which was the subject matter incorporated into independent claim 1 in the February Amendment.” *As the Office has at least conceded that neither Umeya nor Bickmore teach the step of preparing a mixture of metal-containing precursors and carrier particles to create a slurry precursor, Applicants contend that the present obviousness rejections are moot.*

Moreover, Applicants contend that the Office has not given the claims as a whole due consideration with respect to their scope as process claims. The Office states in the Final Office Action that “the selection of any order of performing process steps is *prima facie* obvious in the absence of new or unexpected results” and the process steps of Umeya “comprising mixing three ingredients: (1) ultrafines, (2) core particles and (3) a stream of fluidizing gas in an order: (1) and (3), then adding (2) . . . would be obvious over another order of adding components (1) and (2), then adding (3) in the absence of showing of criticality.”

Applicants emphatically disagree with the Office’s position, as there cannot be a *prima facie* case of obviousness with respect to the order of steps, if the steps themselves are not disclosed in the cited references. Further, Applicants maintain that the Office is not reading the limitations recited in the claims as steps of a method claim. Rather it appears that the Office’s position is that the actual recited steps of the process are irrelevant (absent criticality) if the ingredients are similar, however neither reference nor the combinations of references teach all of the steps or ingredients as asserted by the Office

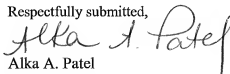
of the recited method claims. Applicants are clearly claiming a method that requires preparing a mixture of one or more metal-containing precursors and carrier particles to create a slurry, feeding the slurry to a high temperature reactor to create a vapor of the slurry precursor, adding a reactive fluid thereby creating a stream of vaporized slurry precursor and reactive fluid, processing the stream, cooling the stream to nucleate the slurry precursor and quenching the stream of nucleated nanoscale powders to form a nano-dispersed nanopowder of carrier particles and metal-containing precursor particles that are dispersed on and attached to the surface of the carrier particles. Umeya and Bickmore necessarily fail to teach or suggest the step of feeding a mixture of one or more metal-containing precursors and carrier particles (i.e., Applicants' claimed "slurry mixture") into a reactor; adding a reactive fluid to the slurry precursor, thereby creating a stream of vaporized slurry precursor and reactive, processing the stream at high temperature, cooling the stream to nucleate the slurry precursor and quenching the stream.

Applicants further contend that Konig and Holzl fail to teach or suggest the present claimed invention and Umeya and Bickmore fail to cure such deficiencies for the reasons set forth in the February Amendment, pages 8, line 28 to page 10, line 13 and incorporated herein.

With regard to the rejection of claims 31-33, claims 31-33 depend directly on and add further limitations to independent claim 1 and are allowable over Konig in view of Holzl and Umeya and Bickmore for at least the same reasons set forth above. Accordingly, Applicants submit that the Office's rejection of these claims in view of the cited art is also rendered moot.

Applicants respectfully assert that all of the above cited references fail to teach or fairly suggest each and every element of the pending claims, and that the Office has improperly overextended the teaching of the cited prior art to include specific limitations that cannot be derived from the text of these references. Furthermore, the Office has failed to consider the pending claims and the cited art as a whole as the cited references fail to render obvious preparing a mixture of one or more metal-containing precursors and carrier particles to create a slurry precursor. For at least these reasons, Applicants respectfully assert that the Office's obviousness reactions are moot as the Office has failed to establish a *prima facie* case of obviousness.

Respectfully submitted,



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